BLACKBURN EXHIBIT A

CV of Thomas L. Blackburn

2409 Klein Road, San Jose, CA 95148-1802 (408) 507-8771 tblackburn2409@yahoo.com

Thomas Blackburn is a noted technologist, product developer, consultant, patent analyst, educator, and expert witness specializing in mobile, cellular, Blue-Tooth wireless technologies, GPS technologies, wired technologies, networks, phones, standards, location-based-services, hardware electrical designs, battery design & analysis and systems. Mr. Blackburn has over thirty years of experience in the field of electrical, industrial, RF and telecommunications engineering. He has worked for private organizations and has been a founder of several successful start-up telecommunications companies. Mr. Blackburn holds over 35 US and International Patents in the telecommunications field.

Since 1996, his professional activities and services have focused exclusively on mobile, cellular, Blue-Tooth wireless technologies, GPS, A-GPS, wireless and wired technologies, forensics, electronic discovery, markets, standards, spectrum, regulations, damages, networks, hardware electrical designs, battery design & analysis and services. He has taught seminars on mobile, cellular and fixed wireless technologies. He has served as a plaintiff and defendant expert witness on a wide spectrum of civil, criminal and business matters/litigation involving wired and wireless technologies, electronic discovery, cable damages & repair costs, communications products and services.

As a patent analyst, he has assisted many leading law firms in defending against or asserting claims of patent infringement and patent validity, including IPR's. This patent work has encompassed Wi-Fi/WLAN standards, Bluetooth standards, DSL standards, all generations of standards for GSM, UMTS, LTE, and CDMA2000 cellular standards, including GSM/3GPP, ETSI, OMA,WAP, CT-2 / DECT / COMS. This patent work also included electrical designs including battery designs, equipment for reading barcodes and other labels, smart-meter designs with battery backup.

He has written many expert reports for non-infringement, infringement, invalidity and validity. Over 25 Declarations and Affidavit's. He has given over 20 depositions and has testifying experience. He has assisted with post grant reviews including IPR's to opine on the validity of patents. He has performed due diligence on patents in the early stages of infringement. He has testified at deposition or at a jury trial over 15 times.

As a cellular forensic analyst, he has worked closely with private attorneys and Public Defenders in analyzing call detail records and has opined on cell phone location after performing cell site and CDR analysis. He has testified at deposition or at a jury trial 25 times.

As an electronic discovery expert, he has worked closely with private attorneys in determining the transmission and receipt of critical documents such as DMCA notices, contracts, agreements, and other legal documents using email, FAX, and other transmissions media.

As a hardware electrical designer, he analyzed failed electrical systems to determine causes.

Mr. Blackburn's expertise in cellular, mobile, GPS, wired and wireless communications encompasses the following areas:

Computer, Cellular/Mobile, GPS and Wireless Technologies

- 2G, 3G & 4G mobile networks
- Location based services GPS, A-GPS, Wi-Fi, Triangulation services
- SMS/MMS Standards & Protocols
- Cordless Telephone Standards
- Cell phone design
- Qi Design & Analysis
- Auto-dialer design
- GPS designs
- GPS devices data analysis & tracking
- Cellular phones, Handsets, Smartphones & PDA's including operating systems, SMS Messaging, MMS, WAP, Web Browsers, filters and access control
- Headphone review & analysis
- Earbud/earphone analysis
- Mobile & Wireless VoIP
- Interstate & International Calling Standards Billing, Access Charges
- Bluetooth devices
- Fax transmissions- Copyright DMCA notices
- Wired technologies DSL, ADSL2+, VDSL
- Power & charger adaptors / smart universal power adaptors / smart tips / Mophie
- E-cigarette design, failure analysis, battery explosion
- Determine cause of failure of hardware electrical systems and devices.
- Microprocessor design & implementations
- Multiple Access Technologies CDMA, TDMA, FDMA, DSSS
- Network Standards
 - o GSM, GPRS & EDGE
 - o HSDPA, HSUPA, HSPA+
 - o iDEN
 - o IS-95, CDMA2000, EV-DO
 - o IS-54, IS-136
 - o CT-2 / DECT / COMS Standards for Cordless Telephones
 - o LTE (Long Term Evolution)
 - o WCDMA/UMTS
 - o Wi-Fi
 - o DSL

Patent Infringement for Wired & Wireless Technologies

- Due diligence on patent claims
- Patent infringement/non-infringement analysis
- IPR Cases
- Patent validity/invalidity analysis & prior art search and opinions
- Claim charts & proof packages
- Technology evolutions
- Expert reports
- Testify

Work History

GTE (General Telephone & Electronics) Advanced Development Group 1972 – 1985

State of the art telephony designs, outside plant, coin & pay phone designs – over 25 US & International Patents

International telephone standards, designs

Go Digital Telecommunications – Engineering Director / Founder 1996 – 2006

State of the art telephony designs – 3 US Patents

Consultant / Expert Witness (05/1985 – Present)

Expert witness & testify, Intellectual Property support services including reverse engineering of hardware & software, copyright & patent claims analysis, research, prior art searches. Cellular systems, GPS, Location Bases Systems, telephone designs, copper cable systems / design, fiber optic systems, Internet Access systems DSP systems, FPGA architectures.

Electronic Product Design and development including audio/video system design, digital & analog design, microcontroller development, battery designs and backup systems, power supply design, e-cigarette failure analysis, Qi design, controller design, earbud analysis.

Consulting Clients:

Hawg Wired Inc. 1997 – 2010

Provided consulting services for Audio System design for motorcycle systems

Echelon Inc. 2005 - 2009

Provided consulting services for Electricity Smart Meter, Lighting fixture & iLON Internet Server, power supply testing, NEBS Level 4 testing. Power supply design w/ power management. Cellular designs.

E/O Networks 1988 - 1990

Provided consulting services regarding VoIP, FTTH (Fiber-to-the-Home) specifications and design. Network Management design. – Patent & copyright reviews.

Raychem 1989 - 1996

Provided consulting services regarding DSL /HDSL systems design. Cable specification & design

Raynet 1988 - 1992

Provided consulting services regarding FTTH (Fiber-to-the-Home) specifications and design. Network Management design – copyright of CD manual for electrical appliances

Able Telecommunications 1987 - 1989

Provided consulting services regarding channel bank & line card design.

International Compliance & Approvals, Inc.

Provided consulting services regarding testing telecommunications systems per UL / Telecordia

Evotech - 1985 - 1995

Provided consulting services regarding systems designs for both commercial & industrial applications. Cell phone designs, navigation devices (GPS), medical devices.

Major expert case areas he has worked on include:

- Patent Infringement / Claim Elements Review, Comparison & Analysis, prior art & discovery
- Patent Infringement / Validity & Invalidity reports, depositions, testify
- Cell phone call records analysis, tracking analysis, GPS, A-GPS
- Cell phone memory analysis (Smart card, SIM, hard-drive) for deleted messages, video, pictures
- 911 & E911 liability, compliance and regulatory issues, equipment failure and maintenance
- Cell Phone design (hardware & mechanical) patent infringement
- Cell Phone charging pad Qi system
- FCC Standards & Regulations Interstate, International calling
- FCC Tariffs, Access Charges, LATA calls
- Design Standards: 3GPP, ETSI, ITU; Wi-Fi Standards 802.11b/g/n
- Networks including UMTS, GSM, TDMA, CDMA, EV-DO, GPRS, FOMA, wireless IP, etc.
- Services including SMS, EMS, MMS, VoIP, SS7, Wi-Fi, email, instant messaging, etc.
- Protocols including SMS, EMS, MMS, HSDPA, WAP, TCP/IP, UDP, etc.
- 800 MHZ Radio System architecture, design, audits and failure analysis Repeater systems
- Cisco servers, routers; network switch architectures; packet switch routing
- Consumer product analysis, forensic testing, reverse engineering, BOM review, construction
- analysis computers, TV Desk Top units, Auto-dialers, wireless devices, Headphones, e-cigarette.
- Determine cost and sales price for products Insurance claims, thief, ebay
- Power system analysis / high voltage failures / proper grounding analysis
- Battery design, analysis, and backup power switching systems
- Battery failure analysis
- 20W 50W power supply designs w/ power management, line powered systems
- PC Power Supply (AT, ATX & Brick-laptop), power management, market surveys & analysis
- Consumer product analysis for proper design / construction & assembly per UL
- Cable liability case involving cable installation procedures
- Cable damage cases and cost analysis
- UL safety testing, NEBS, IEC62052/53, IEC60601 (Medical), IEC61000 & RBOC lab testing
- Class Action Lawsuits earbud analysis
- Electrical failure analysis and causes water heater, electronic cable assemblies.
- Twisted copper cable design / specification for DSL / ADSL2+ transport, 10/100 Mbit
- Computer / laptop analysis records monitoring
- FAX, email using IP
- GPS devices design, data analysis, data recovery
- Location Based Systems
- Laptop design, keypads, battery, battery chargers
- Bluetooth devices
- Audio headphone testing & verification of operation (Boise, ear buds for cell phones).
- DSP & FPGA desktop / plug-in architecture design & reverse engineering
- Fiber Optic system design & failure analysis network management design
- Multi-channel ADSL systems using DSL (gSHDSL) transport technology

Education

| Year | College/University | <u>Degree</u> |
|---------|-----------------------------------------------|----------------------------------|
| 1972-77 | Stanford University (Satellite classes @ GTE) | Graduate work in Engineering and |
| | | Business – non accredited |
| 1972 | Santa Clara University (Satellite classes) | Graduate work in Engineering and |
| | | Business – non accredited |
| 1971 | San Jose State University, San Jose, CA | BS w/distinction, Electrical |
| | | Engineering GPA 3.25 |

Patents Awarded - 37

| US Patent # 3,766,414 | Issued Oct. 16, 1973 |
|-----------------------------------------|-----------------------|
| US Patent # 3,781,482 | Issued Dec. 25, 1973 |
| US Patent # 4,012,688 | Issued Mar. 15, 1977 |
| US Patent # 4,048,576 | Issued Sept.13, 1977 |
| US Patent # 4,145,665 | Issued Mar. 20, 1979 |
| US Patent # 4,170,722 | Issued Oct. 09, 1979 |
| US Patent # 4,205,275 | Issued May. 27, 1980 |
| US Patent # 4,240.024 | Issued Dec. 16, 1980 |
| US Patent # 4,405,903 | Issued Sept.20, 1983 |
| US Patent # 4,439,634 | Issued Mar. 27, 1984 |
| US Patent # 4,536,871 | Issued Aug. 20, 1985 |
| US Patent # 4,580,260 | Issued Apr. 01, 1986 |
| US Patent # 4,583,220 | Issued Apr. 15, 1986 |
| US Patent # 4,591,855 | Issued May. 27, 1986 |
| US Patent # 4,633,459 | Issued Dec. 30, 1986 |
| US Patent # 4,642,426 | Issued Feb. 10, 1987 |
| US Patent # 4,658,395 | Issued Apr. 14, 1987 |
| US Patent # 5,691,718 | Issued Nov. 25, 1997 |
| US Patent # 6,556,638 | Issued Apr. 29, 2003 |
| US Patent # 6,567,522 | Issued May. 20, 2003 |
| US Patent # 7,023,877 | Issues April 04, 2006 |
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International Patent # WO 96/41441 Issued Dec. 19, 1996

| Canadian Patent # 961,097 | Issued Jan. 14, 1975 |
|---------------------------------|-----------------------|
| Canadian Patent # 991,765 | Issued June. 22, 1976 |
| Canadian Patent # 1,107,824 | Issued Aug. 25, 1981 |
| Canadian Patent # 1,123,068 | Issued May. 04, 1982 |
| Canadian Patent # 1,123,924 | Issued May. 18, 1982 |
| Canadian Patent # 1,132,200 | Issued Sept. 21, 1982 |
| Canadian Patent # 1,132,592 | Issued Oct. 12, 1982 |
| Canadian Patent # 1,137,178 | Issued Dec. 07, 1982 |
| Canadian Patent # 1,165,409 | Issued Apr. 10, 1984 |
| Canadian Patent # 1,190,681 | Issued July 16, 1985 |
| Canadian Patent # 2,223,977 | Issued Dec. 19, 1996 |
| European Patent #EP0872067 | Issued Oct. 21, 1998 |
| Australian Patent # AU6038096 | Issued Dec. 30, 1996 |
| South Africa Patent # ZA9604841 | Issued Dec. 08, 1997 |
| Argentina Patent # A002206 | Issued Jan. 07, 1998 |
| | |

Focus Groups

Nichols Research – PC Power Supplies – Market Analysis & Surveys, Oscilloscopes, Semiconductors, cell phone architectures, microprocessors, routers, patents.

Publications & Presentations (Lectures, Teaching Classes)

IEEE Journal –Articles regarding electronics & telecommunications devices (1975 – 1982) – Co-author with Jim Stewart, Neal Zelmer (GTE Lenkurt Inc.)

Presentations at IEEE & NEC conventions and meetings. Presentations at Public Defenders Office's Articles for Quarterly Newsletters – Forensis Group, Consolidated

Professional Associations and Achievements

- IEEE 1972 1985- currently not a member
- 1999 "Super Star" award for superior telecommunications design

Patent Cases in the past 7-10 years:

| Case | Vanguard Products Group v. Invue Security DEFENDANT 2020 Active Patent # 10,043,358 IPR # IPR2020-00069 |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Tim F. Williams Dority & Manning, P.A. Two Liberty Square 75 Beattie Place, Suite 1100 Greenville, SC 29601 USA (864) 271-1592 (864) 527-1554 direct |
| Subject Matter Cause | Merchandise security systems and methods for displaying and protecting an article of merchandise from theft. IPR PTAB Issue |
| Work Product/Service Provided | Technical analysis of related patents Prior Art patent searches Summary in support of validity |

| Case | Solaredge Technologies v. SMA Solar Technology DEFENDANT 2019 Active PLAINTIFF in IPR proceedings Patent # 8,922,048 IPR # IPR2020-00021 | |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Client | Michael Kucher mkucher@slatermatsil.com Slater Matsil, LLP 17950 Preston Road, Suite 1000 Dallas, Texas 75252 (972) 707-9023 | Thomas Eschweiler TEschweiler@epiplaw.com Eschweiler & Potachnik, LLC 629 Euclid Ave., Suite 1000 Cleveland, Ohio 44114 (216) 502-0600 |
| Subject Matter Cause Work Product/Service | System, Apparatus and Methods – PV IPR PTAB Issue Technical analysis of related Prior Art patent searches | Sub-Generator Box & PV Inverter for a PV System patents |
| Provided | Summary in support of validi Claim construction | ty |

| Case | Local Intellegence, LLC v. HTC America, Inc. et al PLAINTIFF 2018 Active |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Nicole D. Galli ndgalli@ndgallilaw.com |
| | Law Offices of N.D. Galli LLC 2 Penn Center Plaza, Suite 910 1500 JFK Blvd Philadelphia, PA 19102 |
| Subject Matter | System, Apparatus and Methods for refreshing a display of a telephone |
| Cause | Patent Infringement |
| Work Product/Service Provided | Technical analysis of related patents Claim terms / Claim Construction / Extrinsic Evidence Declaration in support of Claim Construction briefing |

| Case | Mobility Workx, LLC v. T-Mobile, et. al PLAINTIFF 2018 Active |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | David Skeels dskeels@whitakerchalk.com Whitaker Chalk Swindle & Schwarz PLLC 301 Commerce Street, Suite 3500 Fort Worth, TX 76102-4186 |
| Subject Matter | System, Apparatus and Methods for proactive allocation of wireless communication resources (Handover procedures) |
| Cause | Patent Infringement |
| Work Product/Service Provided | Technical analysis of related patents Claim terms / Claim Construction / Extrinsic Evidence Declaration in support of Claim Construction briefing |

| Case | Smart Meter Tech. v. Duke Energy PLAINTIFF 2017 Active ITRON, Inc. v. Smart Meter Technologies (IPR) DEFENDANT | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Client | Rick Sanchez Decker A Cammack rsanchez@whitakerchalk.com cdammack@whitakerchalk.com | |
| | Whitaker Chalk Swindle & Schwarz PLLC 301 Commerce Street, Suite 3500 Fort Worth, TX 76102-4186 | |
| Subject Matter Cause | Smart Meter technology Power Supply / Battery backup systems Power line communication – cellular, Wi-F-, PLC IPR Petition by ITRON for Smart Meter Patent | |
| Work Product/Service Provided | Technical analysis of related patents Claim terms Prior Art References Wrote IPR Declaration | |

| Case | NIC v. Newport Trial Group PLAINTIFF 2017 Active |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | James M. Sabovich Callahan & Blaine 3 Hutton Centre Drive Ninth Floor Santa Ana, CA 92707 |
| Subject Matter Cause | Location Servers, Data bases, GPS, UMTS, LTE 3GPP Messages Cell Phone Data Records Cell Site Location Sites Declaration for accuracy & reliability of phone records |
| Work Product/Service Provided | Technical analysis of records Wrote Declaration |

| Case | Nokia Corp. v. Huawei Tech. Co. Ltd. PLAINTIFF 2016 Closed |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Client | Scott Stevens Scott.Stevens@alston.com |
| | Alston & Bird LLP 1201 W. Peachtree Street, Atlanta, Georgia 30309 (404) 881-7000 |
| Subject Matter | Cellular handover technologies Inter-RAT & idle mode relocation Handover to non-3GPP |
| Cause | Infringement |
| Work Product/Service Provided | Technical analysis of related patents Claim terms Prior Art References |

| Case | TCL v. Ericsson DEFENDANT 2016 Closed |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Lisa Mandrusiak Imandrusiak@oblon.com |
| | Oblon, McClelland, Maier & Neustadt, LLP 1940 Duke Street, Alexandria, Virginia Direct: 703.412.6492 |
| Subject Matter | Location Servers, Data bases, GPS, A-GPS; UMTS, LTE 3GPP Messages Position updating method, user preferences, determinations |
| Cause | IPR Petition by Plaintiff for Defendant's Patent |
| Work Product/Service Provided | Technical analysis of related patents Prior Art References IPR analysis and rebuttal Wrote (3) IPR Declarations Validity report |

| Case | COMARCO WIRELESS TECHNOLOGIES, INC. v. Apple Inc. PLAINTIFF 2015 Closed | |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--|
| Client | Charles Quinn- (Charles Quinn; Ethan R. Fitzpatrick; Glen M Diehl) CQuinn@grahamcurtin.com | |
| | Charles Quinn; Ethan R. Fitzpatrick; Glen M Diehl GRAHAM CURTIN PA 4 Headquarters Plaza Morristown, NJ 07962-1991 | |
| Subject Matter | Charging adaptors & smart cables. | |
| Cause | Infringement of patent for smart cables | |
| Work Product/Service Provided | Technical analysis of related patents Prior Art References IPR analysis and rebuttal | |

| Case | Core Wireless v. Apple Inc. PLAINTIFF 2014 Closed |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Dino Hadzibegovic - (Bunsow De Mory Smith & Allison LLP) |
| | dhadzibegovic@bdiplaw.com |
| | Bunsow De Mory Smith & Allison LLP |
| | 55 Francisco Street, Suite 600 |
| | San Francisco, CA 94133 |
| | (415) 426-4735 |
| | Protocols and standards – 3GPP / OMA GSM, UMTS, LTE |
| Subject Matter | Quality Measurement Report protocol (QoS parameters); |
| | Dynamic Configurations |
| | Handoff / Handover Procedures |
| Cause | Infringement of patent for data transmission |
| Work Product/Service Provided | Technical analysis of related patents Prior Art References Claim construction Validity charts / reports Infringement reports |

| Case | Skyhook v. Google Plaintiff 2014 Settled |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Paul Ehrlich – Tensegrity Law Group LLP paul.ehrlich@tensegritylawgroup.com |
| | TENSEGRITY LAW GROUP LLP 555 Twin Dolphin Drive, Suite 360 Redwood Shores, CA 94065 650-802-6045 (phone) |
| Subject Matter | 650-802-6001 (fax) Location Based System and Applications – GPS, A-GPS, Wi-Fi; Server Location Storage Tracking system. Blue-Tooth. Wi-Fi servers, data bases |
| Cause | Infringement of patent |
| Work Product/Service Provided | Technical analysis of related patents Prior Art References Claim construction Validity charts / reports Infringement reports |

| Case | BookIT v. Google Plaintiff 2014 Closed |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Annie Huang – Robins, Kaplan, Miller & Ciresi ahuang@rkmc.com |
| | Robins, Kaplan, Miller & Ciresi 601 Lexington Ave. |
| | New York, NY 10022 (212) 980-7438 |
| Subject Matter | SMS Network Architecture & System, Location servers & databases Booking Systems |
| Cause | Infringement of patent |
| Work Product/Service Provided | Technical analysis of related patents Prior Art References Claim construction Validity charts / reports Infringement reports |

| Case | SmartPhone Technologies, Inc. v. HTC Corp. PLAINTIFF 2013 Settled |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Ed Nelson- (Nelson Bumgardner Casto- Intellectual Property Litigation) |
| Client | enelson@nbclaw.net; tcecil@nbclaw.net |
| | Nelson Bumgardner Casto |
| | 3131 W. 7 th Street, Suite 300 |
| | Fort Worth, Texas 76107 |
| | (817) 806-3812 |
| Subject Matter | Telephony Functionality of Smartphone; Synchronization of computers Alternative Network Links; Managing Phone Calls on a PDA; Data Exchange between Computers Handset functionality |
| Cause | Infringement of patents |
| Cause | initingement of patents |
| Work Product/Service Provided | Technical analysis of related patents & review of Nokia patent portfolio Prior Art References Claim construction Validity charts / reports Infringement reports |

| Case | SmartPhone Technologies, Inc. v. RIM Corp PLAINTIFF 2013 Settled |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | James C. Hall – (Hays Bostock Cronin LLC) Hays Bostock Cronin LLC 300 Brickstone Square Suite 900 Andover, MA 01810 |
| Subject Matter | Protocols and Standards – 3GPP / OMA GSM, UMTS Synchronization methods, communications methods, paging methods Telephony Functionality of Smartphone; Handset functionality |
| Cause | Infringement of patents |
| Work Product/Service Provided | Technical analysis of related patents & review of Nokia patent portfolio Prior Art References Claim construction Validity charts / reports |

| Case | Netairus Technologies, LLC v. Apple Inc. PLAINTIFF 2013 Closed |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Marc Lorelli - (Law Firm –Brooks Kushman P.C.) |
| Client | mlorelli@brookskushman.com |
| | Brooks Kushman P.C. 1000 Town Center Drive, 22 nd Floor Southfield, MI 48075-1238 (248) 358-4400 |
| Subject Matter | Protocols and standards – 3GPP / OMA GSM, UMTS UTRAN Wireless Handset Communications System SMS Content; Web based applications |
| Cause | Infringement of patent for data transmission / power of transmission |
| Work Product/Service Provided | Technical analysis of related patents and cellular / Wi-Fi networks Expert report on Infringement Expert report on Validity Deposition scheduled |

| Case | Netairus Technologies, LLC v. Apple Inc. PLAINTIFF 2013 Closed |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Mark D. Roth - (Orum & Roth, LLC) markdroth@gmail.com |
| | ORUM & ROTH, LLC 53 West Jackson Blvd. Suite 620 Chicago, Il 60604 312-922-6262 |
| Subject Matter | Protocols and standards – 3GPP / OMA GSM, UMTS UTRAN Wireless Handset Communications System SMS Content; Web based applications |
| Cause | Infringement of patent for data transmission / power of transmission |
| Work Product/Service Provided | Technical analysis of related patents and cellular / Wi-Fi networks Expert report on Infringement Expert report on Validity Deposition -Nov 3, 2011 Re-exam of patent → Found valid → 2nd deposition Aug 15, 2013 Testified in court – Infringement & Validity – Dec. 2013 |

| Case | 2-Way Computing v. Sprint PLAINTIFF 2010 Closed |
|-------------------------------------|----------------------------------------------------------------------------------------------------|
| Client | Christina McCullough- (Knobbe Martens – Intellectual Property Law) christina.mccullough@kmob.com |
| | Knobbe Martens 1420 Fifth Avenue, Suite 3600 Seattle, WA 98101 |
| Subject Matter | Protocols and standards – 3GPP / OMA Computer Station Audio Communications – Blue-Tooth, Wi-Fi. |
| Cause | Infringement of patent |
| Work Product/Service Provided | Technical analysis of related patents Claim construction |

| Case | Plant Eq. (Cassidian Communications) v Intrado PLAINTIFF 2012 Closed |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Client | Matt Greinert - (Dewey & LeBoeuf) |
| | mgreinert@dl.com |
| | Dewey & LeBoeuf |
| | One Montgomery Street, Suite 3500 |
| | San Francisco, CA 94104 |
| | (415) 951-1100 |
| Subject Matter | Protocols and standards – 3GPP / OMA Emergency systems - 911 |
| Cause | Infringement of patent |
| Work Product/Service Provided | Technical analysis of related patents Review of infringing products Claim construction |

| Case | KARL v. Purple Tree Technologies , Inc. DEFENDANT 2012 Closed |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Richard Brophy- (Armstrong Teasdale, LLP– Intellectual Property Litigation) |
| | Armstrong Teasdale LLP 7700 Forsyth Blvd. Suite 1800 St. Louis, MO 63105 |
| Subject Matter Cause | Patent Infringement Transmission technologies – CDMA/ UMTS Infringement of patent |
| Work Product/Service Provided | Technical analysis of related patents Review of infringing products Review routers/servers, security, backup files Prior Art review / Claim construction |

| Case | Barry Rosen v. Global Net Access DEFENDANT 2012 Jury Trial - Closed |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Jeffrey Cohen & Richardson, P.C. Jeffrey Cohen Cohen & Richardson, P.C. 2321 Rosecrans Ave., Suite 4210 El Segundo, CA 90245 |
| Subject Matter | Copyright Infringement |
| Cause | Infringement of copyright pictures |
| Work Product/Service Provided | Technical analysis of related media and technology Review routers/servers, security measures, backup files Industry analysis of transmission means Expert report Deposition August 31, 2011 Trial testimony August 01, 2012 |

| Case | Motorola Mobility, Inc. v. Apple Inc. PLAINTIFF 2012 Closed |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Client | Quinn Emanuel Urquhart & Sullivan, LLP 500 W. Madison Street, Suite 2450 Chicago, Illinois 60661-2510 (312) 463-2961 |
| Subject Matter | Protocols and standards – Network |
| Cause | Infringement of patent |
| Work Product/Service Provided | Technical analysis of related patents |

| Case | Microsoft Corp. v. Motorola Mobility, Inc. DEFENDANT 2012 Closed |
|-------------------------------------|----------------------------------------------------------------------------------------------------------|
| Client | Tim Whitfield – (Powell Gilbert, LLP) Powell Gilbert, LLP 85 Fleet Street London, UK +44 20 3040 8032 |
| Subject Matter | Protocols and standards – Network |
| Cause | Infringement of patent |
| Work Product/Service Provided | Technical analysis of related patents |

| Case | Cellular Trace LLC v. AT&T, T-Mobile et al PLAINTIFF 2010 – 2011 Settled |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Decker Cammack Esq. (Law Firm – Nelson Bumgardner Casto, P.C.) dcammack@nbclaw.net |
| | Nelson Bumgardner Casto, P.C. 3131 West 7 th St. Suite 300 Fort Worth, TX 76112 (817) 377-3490 |
| Subject Matter | Protocols and standards – 3GPP / OMA SMS, MMS Messaging techniques WAP messages |
| Cause | Infringement of patent(s) for SMS Messaging technology |
| Work Product/Service Provided | Technical analysis of related patents and SMS Messaging protocols Review of SMS,WAP,MMS standards Expert report of infringement / validity Analysis / testing of infringing cell phone products |

| Case | Cellular Trace LLC v. Metro PCS PLAINTIFF 2010 – 2011 Settled |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Decker Cammack Esq. (Law Firm – Nelson Bumgardner Casto, P.C.) dcammack@nbclaw.net |
| | Nelson Bumgardner Casto, P.C. 3131 West 7 th St. Suite 300 Fort Worth, TX 76112 (817) 377-3490 |
| Subject Matter | Protocols and standards – 3GPP / OMA SMS, MMS Messaging techniques WAP messages |
| Cause | Infringement of patent(s) for SMS Messaging technology |
| Work Product/Service Provided | Technical analysis of related patents and SMS Messaging protocols Review of SMS,WAP,MMS standards Expert report of infringement / validity Analysis / testing of infringing cell phone products |

| Case | U.S. Pat 7,209,950 Due Diligence PLAINTIFF 2011 Closed |
|-------------------------------------|-----------------------------------------------------------------------------------------------|
| Client | Michell S. Rosenfeld (Pluritas –Experts in Transacting IP) mitch@pluritas.com |
| | Pluritas –Experts in Transacting IP 201 California Street – Suite 650 San Francisco, CA 94111 |
| Subject Matter | Inter-carrier SMS/MMS Reformatting |
| Cause | Possible Infringement of patent |
| Work Product/Service Provided | Technical analysis of patent & technology Technical report |

| Case | Wi-LAN, Inc. v. Westell Technologies, Inc. et al. DEFENDANT 2009-2010 Settled |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | Michael Spillner- Partner (Law Firm – Orrick, Herrington & Sutcliffe LLP) mspillner@orrick.com |
| | Orrick 1000 Marsh Road Menlo Park, CA 94025 (650) 614-7400 |
| Subject Matter | ADSL line powered product (L0, L2,L3 Techniques) |
| Cause | Infringement of patent for ADSL technologies |
| Work Product/Service Provided | Technical analysis of related patents and ADSL technology Industry analysis of products Prior art searches Claims analysis / claim charts Expert report of Invalidity |

Cell Phone Forensics – GPS, CDR Analysis & Mapping (Criminal Cases)

- Over 50 cases involving criminal activity robbery, murder
- Testified in court or deposition over 20 times
- Use of GPS / A-GPS to track cellular devices

Cell Phone Forensics – GPS, CDR Analysis & Mapping (Non-Criminal Cases)

- Over 20 cases involving lawsuits, car accidents, harassment, divorce
- Testified in court or deposition over 10 times
- Use of GPS / A-GPS to track cellular devices

Other Cases (Not Involving Cell Phones)

- Over 15 cases involving Class Action Lawsuits (Apple Inc.), liability cases, manufacturing, counterfeit product analysis
- Testified in court or deposition over 10 times

Class Action Lawsuit (Apple Inc.) - Apple iPOD earbuds & earphones (testing & analysis) - Plaintiff

Class Action Lawsuit (Apple Inc.) - Apple iPhone touchscreen components (testing & analysis) - Plaintiff

Sleek Audio v. Curtis Jackson – Headphones – Wi-Fi, Defendant alleged to have copied the Plaintiff's design

M2 Enterprises - involving analysis of BOISE headphones (determine if counterfeit)

Forward v. Sansonic - Manufacturing case involving testing, design review of TV Desk Top products & headphones - Defendant

State Farm General Insurance v. Atomi Inc. - Defendant

State Farm General Insurance v. Best Case Accessories - Defendant\

Regents of The University of California v. The Electric Heater Company - Defendant

PacBell v. Phase 3 – Liability case involving telecommunications cables – Defendant

PacBell v. Griffith – Liability case involving telecommunications cables – Defendant

PacBell v. Pile Foundation - Liability case involving telecommunications cables - Defendant

Verizon v. Community Central Energy – Case involving liability for cable damage / installation / design – Defendant

Auburn Lake Trail POA v. R&S Gates – POA suing R&S Gates for faulty telephone equipment installation.

John Fieldman v. ATT – E911 failure resulting in death and destructive fire. Repeater equipment failure - Defendant

Nokia Siemens Networks v. CarrierComm – involving analyzing microwave IDU / ODU and performance

Rosen v. GNAX – Electronic discovery issue using FAX and email transmissions – Defendant

Miles v. Matsushige – Water damage to electronic equipment – replacement value analysis – Defendant

Pacific Bell v. Tupent – Damage to electrical splice box – estimate of repair for insurance co. – Defendant

Whizz Systems v. KK Builders – Damage to AMS Antenna Measurement System from water leak - Defendant